
	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	New 7/03
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Latent Tuberculosis Infection

Overview

For a more complete description of Latent Tuberculosis Infection refer to the following texts:

- Control of Communicable Disease Manual (CCDM).
- Red Book, Report of the Committee on Infectious Diseases.
- Core Curriculum on Tuberculosis What the Clinician Should Know, Fourth Edition 2000
- American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America: Treatment of Tuberculosis

Case Definition

Clinical Description

A condition in which TB bacteria are alive but inactive in the body. People with latent TB infection have no symptoms, don't feel sick, can't spread TB to others, and usually have a positive skin test reaction. But they may develop TB disease later in life if they do not receive treatment for latent TB infection.

Clinical case definition

In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called latent TB infection.


People with latent TB infection

- Have no symptoms, and
- Do not feel sick, and
- Can not spread TB to others, and
- Usually have a positive skin test reaction, and
- Can develop TB disease later in life if they do not receive treatment for latent TB infection.

Many people who have latent TB infection never develop TB disease. In these people, the TB bacteria remain inactive for a lifetime without causing disease. But in other people, especially people who have weak immune systems, the bacteria become active and cause TB disease.

Comment:

Latent TB infection is currently not reportable to CDC through MOHSIS.

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Difference Between Latent TB Infection and TB Disease

Latent TB Infection	TB Disease
<ul style="list-style-type: none"> • Have no symptoms • Do not feel sick • Cannot spread TB to others • Usually have a positive skin test • Chest x-ray and sputum test normal 	<ul style="list-style-type: none"> • Symptoms include <ul style="list-style-type: none"> ○ a bad cough that lasts longer than 2 weeks ○ pain in the chest ○ coughing up blood or sputum ○ weakness or fatigue ○ weight loss ○ no appetite ○ chills ○ fever ○ sweating at night • May spread TB to others • Usually have a positive skin test • May have abnormal chest x-ray, and/or positive sputum smear or culture


Case/Contact Follow Up and Control Measures

A TB skin test is the only way to find out if a person has latent TB infection. Individuals who are candidates for testing are

- People who have spent time with a person with known or suspected to have TB disease.
- HIV infected people or people with other conditions that weaken their immune system.
- If they are from a country where TB disease is very common (most countries in Latin America and the Caribbean, Africa, Asia, Eastern Europe and Russia).
- If the person uses injected drugs.
- If the person lives in a congregate setting such as homeless shelters, migrant farm camps, prisons and jails, nursing homes, etc.

Diagnostic Procedures

The Tuberculosis Skin Test (TST) is the most common method for determining whether a person is infected with the TB bacteria. The Mantoux is the standardized skin test in Missouri. The Mantoux method involves the intradermal injection of five (5) Tuberculin Units (TU) of Purified Protein Derivative (PPD). The usual injection site is the volar or dorsal surface of the arm, however, other sites such as the scapular area of the back, can be used.

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The skin test is positive if the induration (not the erythema) measures

>5 MM if the person is

- HIV-positive persons;
- Recent contacts of a TB case;
- With fibrotic changes on chest radiograph consistent with old TB;
- Patients with organ transplants, and other immunosuppressed patients (receiving the equivalent of ≥ 15 mg/day of prednisone for ≥ 1 month)

>10 MM if the person is

- Recent arrivals (< 5 years) from high-prevalence countries;
- Injection drug users;
- Residents and employees of high-risk congregate settings (e.g., correctional facilities, nursing homes, homeless shelters, hospitals, and other health care facilities);
- Mycobacteriology laboratory personnel;
- With clinical conditions that make them high-risk;
- Children < 4 years of age, or children and adolescents exposed to adults in high-risk categories.

>15 MM if the person is


- With no known risk factors for TB.

If the results of the skin test are positive the individuals should be referred to a physician to rule out Tuberculosis disease prior to the start of any treatment. For more information on administering skin test and the interpretation of skin test results see the Missouri Department of Health and Senior Services' Tuberculosis Control Manual, section 2.0

Reporting Requirements

Latent TB Infection is a Category II disease and shall be reported to the local health authority or to the Missouri Department of Health and Senior Services (DHSS) within three days of first knowledge or suspicion.

1. For confirmed cases of latent TB infection complete a "Tuberculin Testing Record" (TBC4), or complete a "Disease Case Report" (CD-1).
2. Send the completed form to the Regional Health Office.
3. All outbreaks or "suspected" outbreaks must be reported as soon as possible (by phone, fax, or e-mail) to the Regional Communicable Disease Coordinator. This can be accomplished by completing the Missouri Outbreak Surveillance Report (CD-51).

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4. Within 90 days of the conclusion of an outbreak, submit the final outbreak report to the Regional Communicable Disease Coordinator.

References

1. American Academy of Pediatrics. "Tuberculosis." In: Pickering LK, ed. 2000 Red Book: Report of the committee on Infectious Diseases. 25th ed. Elk Grove village, IL. 2000:593-613.
2. Centers for Disease Control and Prevention. Core Curriculum on Tuberculosis, What the Clinician Should Know. 4th ed., 2000.
3. American Thoracic Society Documents. American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America: Treatment of Tuberculosis, October 2002.
4. Missouri Department of Health and Senior Services. Tuberculosis Case Management Manual. Revised annually.

Web Sites:

1. Centers for Disease Control and Prevention, Division of Tuberculosis Elimination www.cdc.gov/nchstp/tb/ (June 2003).
2. American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America: Treatment of Tuberculosis <http://www.thoracic.org/adobe/statements/treattb.pdf> (June 2003).
3. Missouri Department of Health and Senior Services' Tuberculosis Control Manual <http://www.dhss.state.mo.us/TBManual/index.pdf> (June 2003).
4. Francis J. Curry National Tuberculosis Center <http://www.nationaltbcenter.edu/> (June 2003).
5. Charles P. Felton National Tuberculosis Center at Harlem Hospital <http://www.harlemtbcenter.org/> (June 2003).
6. New Jersey Medical School National Tuberculosis Center <http://www.umdnj.edu/ntbcweb/tbsplash.html> (June 2003).

What is Latent Tuberculosis Infection (LTBI)

FACT SHEET

What is latent TB infection?

In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called latent TB infection. People with latent TB infection

- Have no symptoms
- Don't feel sick
- Can't spread TB to others
- Usually have a positive skin test reaction
- Can develop TB disease later in life if they do not receive treatment for latent TB infection

Many people who have latent TB infection never develop TB disease. In these people, the TB bacteria remain inactive for a lifetime without causing disease. But in other people, especially people who have weak immune systems, the bacteria become active and cause TB disease.

What is the TB Skin Test?

The TB skin test tells you if the tuberculosis bacteria are in your body. Your health care professional places a small amount of solution under the skin with a needle to see if a reaction occurs. Keep in mind that, although many people are infected with TB, very few develop TB disease.

Getting your TB test results

Within 2-3 days after the test, you'll be asked to return to your health care professional. Be sure to keep this appointment. Your test results will be evaluated during this visit. In some cases, a second test may be done to confirm results.

What do the test results mean?

- **Negative results** mean you probably don't have the tuberculosis bacteria in your body.
- **Positive results** mean that you may have been infected with the tuberculosis bacteria. This doesn't necessarily mean you have TB disease – you may have TB infection. More tests, such as chest x-rays, are needed to find out if you have TB disease.

Whether you have TB disease or infection, you must see a health care professional for evaluation and treatment.

Medication for TB infection

The medication usually used for the treatment of latent TB infection is a drug called Isoniazid or INH. INH kills the TB bacteria that are in the body. If you take your medicine as prescribed, treatment for latent TB infection will keep you from ever developing TB disease.

Take **all** your medication as prescribed. This usually keeps TB infection from ever developing in the disease.



TUBERCULIN TESTING RECORD

A. PATIENT IDENTIFYING INFORMATION			
NAME (LAST, FIRST, MIDDLE INITIAL)		DATE OF BIRTH (MM/DD/YR)	
HOME TELEPHONE		SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	
WORK TELEPHONE		ETHNIC ORIGIN <input type="checkbox"/> AM. INDIAN OR ALASKAN NATIVE <input type="checkbox"/> BLACK <input type="checkbox"/> ASIAN OR PACIFIC ISLANDER	
ADDRESS		<input type="checkbox"/> HISPANIC <input type="checkbox"/> NOT HISPANIC	
CITY		OCCUPATION	
PLACE OF EMPLOYMENT			
B. HISTORY OF TUBERCULIN TEST			
HAVE YOU EVER HAD A BCG VACCINE?		WHEN (MO/DAY/YR)	
<input type="checkbox"/> NO <input type="checkbox"/> YES		IF YES <input type="checkbox"/>	
HAVE YOU EVER HAD A TUBERCULIN SKIN TEST?		WHEN (MO/DAY/YR)	
<input type="checkbox"/> NO <input type="checkbox"/> YES		IF YES <input type="checkbox"/>	
RESULTS IN mm OF PREVIOUS SKIN TEST			
C. CURRENT TUBERCULIN PPD MANTOUX TEST(S)			
DATE ADMINISTERED (MO/DAY/YR)		DATE READ (MO/DAY/YR)	
RESULTS IN mm		RESULTS IN mm	
DATE ADMINISTERED (MO/DAY/YR)		DATE READ (MO/DAY/YR)	
RESULTS IN mm		RESULTS IN mm	
D. ATTENDING HEALTH CARE PROVIDER			
NAME			
TELEPHONE NUMBER			
REPORTED BY			
NAME			
FACILITY			
ADDRESS			
TELEPHONE NUMBER			
DATE			
E. REASON FOR TESTING			
<input type="checkbox"/> CONTACT TO TB CASE <input type="checkbox"/> EMPLOYMENT <input type="checkbox"/> MEDICALLY REFERRED			
<input type="checkbox"/> SYMPTOMATIC (PERSISTENT COUGH FOR MORE THAN 3 WEEKS, FEVER, NIGHT SWEATS, WEIGHT LOSS)			
<input type="checkbox"/> RESIDENT/EMPLOYEE OF <input type="checkbox"/> LONG TERM CARE FACILITY <input type="checkbox"/> DEPARTMENT OF CORRECTIONS			
<input type="checkbox"/> HEALTH CARE FACILITY <input type="checkbox"/> SUBSTANCE ABUSE CENTER <input type="checkbox"/> SCHOOL/DAY CARE			
<input type="checkbox"/> OTHER (COMMENT)			
I CONSENT TO A TUBERCULIN SKIN TEST FOR THE ABOVE REASON(S). I UNDERSTAND I AM TO HAVE THE SKIN TEST READ IN 48-72 HOURS BY THE DESIGNATED READER/INTERPRETER.			
CLIENT'S/GUARDIAN SIGNATURE			
DATE			
F. X-RAY REFERRAL			
CHEST X-RAY DONE		DATE DONE	
<input type="checkbox"/> NO <input type="checkbox"/> YES		RESULTS FINDINGS	
		<input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL	
G. TREATMENT/RECOMMENDATIONS			
<input type="checkbox"/> TUBERCULIN TEST POSITIVE			
<input type="checkbox"/> PREVENTIVE DRUG THERAPY TO BE INITIATED			
<input type="checkbox"/> PATIENT REFUSES PREVENTIVE THERAPY			
<input type="checkbox"/> NO FURTHER ACTION NEEDED - REASON:			
<input type="checkbox"/> TUBERCULIN TEST NEGATIVE			
<input type="checkbox"/> PREVENTIVE DRUG THERAPY TO BE INITIATED			
<input type="checkbox"/> NO FURTHER ACTION NEEDED			
<input type="checkbox"/> FURTHER SUPERVISION RECOMMENDED			
PREVENTIVE THERAPY ORDERED FOR _____ MONTHS STARTING (MO/DAY/YR):			
MEDICATION AND DAILY DOSAGE:			
INH (DAILY DOSAGE)		OTHER (DAILY DOSAGE) OR INH (2 OR 3 x WEEKLY) OTHER (2 OR 3 x WEEKLY)	
MEDICATION PROVIDED BY: <input type="checkbox"/> HEALTH DEPARTMENT <input type="checkbox"/> PRIVATE PROVIDER			
H. RISK FACTORS			
MISSOURI DEPARTMENT OF HEALTH RECOMMENDATIONS FOR FOLLOW-UP AND PREVENTIVE TREATMENT — (CHECK APPROPRIATE RISK FACTOR(S)):			
1. <input type="checkbox"/> CONTACT TO TB CASE			
2. <input type="checkbox"/> IMMUNOSUPPRESSED PERSON (e.g., IMMUNOSUPPRESSIVE THERAPY, HIV INFECTION OR MALIGNANCY)			
3. <input type="checkbox"/> ABNORMAL CHEST X-RAY (i.e., OLD HEALED TB)			
4. <input type="checkbox"/> FOREIGN-BORN PERSON FROM AREAS WHERE TB IS COMMON			
5. <input type="checkbox"/> I.V. DRUG USER AND/OR ALCOHOLIC			
6. <input type="checkbox"/> RESIDENT OR EMPLOYEE OF CORRECTIONAL FACILITY, NURSING HOME, MENTAL INSTITUTION			
7. <input type="checkbox"/> CHILDREN YOUNGER THAN 4 YEARS OF AGE			
8. <input type="checkbox"/> HOMELESS OR MIGRANT WORKERS			
9. <input type="checkbox"/> MEDICALLY UNDERSERVED, LOW INCOME POPULATIONS			
10. <input type="checkbox"/> PERSON WITH DIABETES MELLITUS, POST-GASTRECTOMY, SILENCOSIS, PROLONGED CORTICOSTEROID THERAPY OR 10% OR MORE BELOW IDEAL BODY WEIGHT			
11. <input type="checkbox"/> PERSONS WHO PROVIDE HEALTH CARE SERVICES OR TEACH HIGH-RISK GROUPS			
12. <input type="checkbox"/> SKIN TEST CONVERTER WITHIN 2 YEARS			
COMMENTS:			



MISSOURI DEPARTMENT OF HEALTH
DISEASE CASE REPORT

REPORT TO LOCAL PUBLIC HEALTH AGENCY

(INSTRUCTIONS ON REVERSE SIDE)

DATE RECEIVED BY LOCAL HEALTH AGENCY

A. CASE IDENTIFICATION (ALL DISEASES)

NAME (LAST, FIRST, M.I.)		DATE OF BIRTH (MO/DAY/YR)	AGE	TELEPHONE NUMBER ()
ADDRESS (STREET OR RFD, CITY, STATE, ZIP CODE)			MEDICAL RECORD NUMBER	GENDER <input type="checkbox"/> M <input type="checkbox"/> F
COUNTY OF RESIDENCE	PATIENT DIED OF THIS ILLNESS <input type="checkbox"/> YES <input type="checkbox"/> NO		PARENT OR GUARDIAN IF A MINOR	
PATIENT EMPLOYED? <input type="checkbox"/> YES <input type="checkbox"/> NO	SCHOOL/DAY CARE/WORKPLACE AND OCCUPATION			ETHNIC ORIGIN <input type="checkbox"/> HISPANIC <input type="checkbox"/> NOT HISPANIC
RACE <input type="checkbox"/> BLACK <input type="checkbox"/> ASIAN/PACIFIC ISLANDER <input type="checkbox"/> MIXED <input type="checkbox"/> WHITE <input type="checkbox"/> AMERICAN INDIAN <input type="checkbox"/> OTHER (SPECIFY) _____		PATIENT'S COUNTRY OF ORIGIN		DATE ARRIVED IN U.S.A.
WAS PATIENT HOSPITALIZED? <input type="checkbox"/> YES <input type="checkbox"/> NO	ARRIVED BY AMBULANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO	OTHER CASES? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN		
RESIDE IN NURSING HOME? <input type="checkbox"/> YES <input type="checkbox"/> NO	NOSOCOMIAL INFECTION? <input type="checkbox"/> YES <input type="checkbox"/> NO			
NAME OF HOSPITAL/NURSING HOME		ADDRESS		

B. PERSON OR AGENCY REPORTING

NAME		DATE OF REPORT (MO/DAY/YR)	TELEPHONE NUMBER ()
ADDRESS		<input type="checkbox"/> PHYSICIAN <input type="checkbox"/> OUTPATIENT CLINIC <input type="checkbox"/> LABORATORY <input type="checkbox"/> HOSPITAL <input type="checkbox"/> PUBLIC HEALTH CLINIC <input type="checkbox"/> SCHOOL	
ATTENDING PHYSICIAN NAME	ADDRESS	TELEPHONE NUMBER ()	

C. DISEASE

DISEASE	PLEASE INCLUDE CONFIRMATORY LABORATORY DATA (ATTACH COPY IF AVAILABLE)		
	DATES	TYPE OF TEST	RESULT
			LAB NAME/LOCATION
DATE OF ONSET (MO/DAY/YR)	DATE OF DIAGNOSIS (MO/DAY/YR)	LEAD <input type="checkbox"/> VENOUS <input type="checkbox"/> CAP	COMMENTS

PLEASE COMPLETE THE APPROPRIATE SECTION FOR THE DISEASE BEING REPORTED

SEXUALLY TRANSMITTED DISEASES	D. SYPHILIS	<input type="checkbox"/> GONORRHEA <input type="checkbox"/> CHLAMYDIA (CHECK ABOVE BOXES AS APPROPRIATE)	DATE	TEST	RESULTS	HAS PATIENT BEEN TREATED? <input type="checkbox"/> YES <input type="checkbox"/> NO
	<input type="checkbox"/> PRIMARY (CHANCER PRESENT) <input type="checkbox"/> SECONDARY (SKIN LESIONS, RASH, ETC.) <input type="checkbox"/> EARLY LATENT (ASYMPTOMATIC, LESS THAN 1 YEAR) <input type="checkbox"/> LATE LATENT (OVER 1 YEAR DURATION) <input type="checkbox"/> NEUROSYPHILIS <input type="checkbox"/> CARDIOVASCULAR <input type="checkbox"/> CONGENITAL <input type="checkbox"/> OTHER	<input type="checkbox"/> ASYMPTOMATIC <input type="checkbox"/> UNCOMPLICATED UROGENITAL (URETHRITIS, CERVICITIS) <input type="checkbox"/> SALPINGITIS (PID) <input type="checkbox"/> OPHTHALMIA/CONJUNCTIVITIS <input type="checkbox"/> OTHER (ARTHRITIS, SKIN LESIONS, ETC.)				DATE(S) OF TREATMENT
			TREATMENT NOT INDICATED BECAUSE: <input type="checkbox"/> PREVIOUS ADEQ. TREATMENT <input type="checkbox"/> FALSE POSITIVE DATE OF PREVIOUS TREATMENT: _____ PREV. DISEASE/STAGE _____ PLACE: _____			TYPE AND AMOUNT OF TREATMENT

ENTERIC DISEASES OR HEPATITIS	E. ENTERIC AND PARASITIC DISEASES AND HEPATITIS A		TREATMENT	F. HEPATITIS <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> PRENATAL <input type="checkbox"/> OTHER			
	CHECK BELOW IF PATIENT OR MEMBER OF PATIENT'S HOUSEHOLD (HHLD):	PATIENT YES NO UNK	HHLD MEMBER YES NO UNK	DRUG	(CHECK ALL TESTS PERFORMED)		
	IS A FOOD HANDLER			DOSAGE	JAUNDICED: <input type="checkbox"/> YES <input type="checkbox"/> NO	TEST	POS NEG
	ATTENDS OR WORKS AT A DAY CARE CENTER				JAUNDICE ONSET DATE: _____	HAV-IgM	
	IS A HEALTH CARE WORKER			<input type="checkbox"/> NO TREATMENT	CARRIER? <input type="checkbox"/> YES <input type="checkbox"/> NO	HBsAg	
					ALT	AST	HBsAb
							HBcAb
							Hep C

TUBERCULOSIS	G. <input type="checkbox"/> DISEASE OR <input type="checkbox"/> INFECTION	X-RAY <input type="checkbox"/> NORMAL (DATE) _____ <input type="checkbox"/> ABNORMAL (DATE) _____	BACTERIOLOGY	TREATMENT	DOSAGE
	TUBERCULIN TEST (DATE)	(CHECK ONE) <input type="checkbox"/> STABLE <input type="checkbox"/> CAVITARY <input type="checkbox"/> WORSENING <input type="checkbox"/> NONCAVITARY <input type="checkbox"/> IMPROVING <input type="checkbox"/> NOT DONE <input type="checkbox"/> UNKNOWN	TYPE OF SPECIMEN	<input type="checkbox"/> ISONIAZID	
	RESULTS (MM INDURATION)		SMEAR (DATE) _____ POS NEG PEND-ING CULTURE (DATE) _____ POS NEG PEND-ING	<input type="checkbox"/> ETHAMBUTOL	
	TYPE OF TEST (CHECK ONE) <input type="checkbox"/> MANTOUX (5TU-PPD) <input type="checkbox"/> MULTIPLE PUNCTURE DEVICE <input type="checkbox"/> NOT DONE	PREVIOUS TB DISEASE <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNK	REPORT DATE <input type="checkbox"/> NOT STATED OR UNKNOWN <input type="checkbox"/> NOT DONE IF CULTURE POSITIVE: <input type="checkbox"/> M. TUBERCULOSIS <input type="checkbox"/> ATYPICAL MYCOBACTERIA (SPECIFY) _____	<input type="checkbox"/> PYRAZINAMIDE	
				<input type="checkbox"/> RIFAMPIN	
				<input type="checkbox"/> OTHER (SPECIFY) _____	
				DATE TREATMENT STARTED	